

Proton Therapy for Breast Cancer

Safe, Effective Treatment Protects Heart, Lung Tissues From Harm

While radiation therapy is an essential part of breast cancer treatment for many patients, the heart and lungs are unavoidably exposed to low doses of radiation therapy in the process. At least one major study has demonstrated the correlation between increased doses of radiation to the heart and cardiac side effects.¹

However, multiple studies have demonstrated that proton therapy reduces radiation exposure to the heart and lungs.^{2,3,4} Early clinical trials have also shown that proton treatment is safe and effective.^{5, 6, 7, 8}

Factors that influence the decision to treat breast cancer with proton therapy include:

Tumor laterality

- Patients with left-sided tumors may benefit more because proton therapy has been shown to decrease the dose to the heart compared to conventional photon therapy, especially when patients are receiving treatment to their regional lymph nodes.^{2,3,4}

Nodal involvement

- Proton therapy allows more dose to be delivered to the areas at risk, especially the internal mammary lymph nodes (IMN), while reducing the dose to the lungs and heart.^{5,6,7}

Patient age

- Facing a longer life span, young patients may benefit more from proton treatment because of its decreased radiation dose to surrounding structures, which may result in a potential for decreased long-term side effects, including recurrent cancers, heart, and lung disease.

Get the Best Care for Your Patient

The MedStar Georgetown University Hospital Proton Therapy Center offers your patients with breast tumors their best option for optimal outcomes through:

- The most precise proton therapy technology currently available
- An experienced, multidisciplinary, and compassionate team
- The complete suite of radiation modalities all under one roof

Cheryl Savage, Administrator, Radiation Medicine

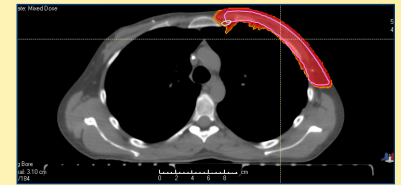
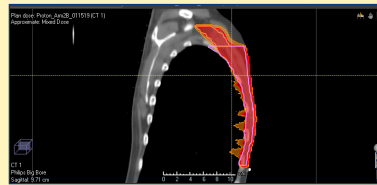
Phone: **202-444-4639**

Email: savagech@gunet.georgetown.edu

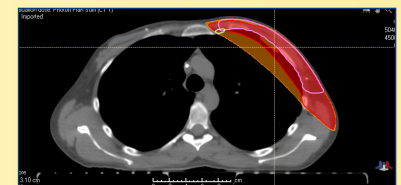
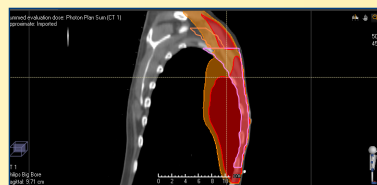
References

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Protons



Photons



Pictured above: Post-mastectomy radiation therapy to the left chest wall and regional lymph nodes with proton therapy compared to post-mastectomy radiation therapy to the left chest wall and regional lymph nodes with photon therapy.



Proton Therapy With HYPERSCAN™ at MedStar Georgetown University Hospital

MedStar Georgetown University Hospital is proud to be the first and only hospital to offer proton therapy in the Washington, D.C., metropolitan area, greatly enhancing the care of and convenience for your patients. In addition, MedStar Georgetown's Proton Therapy Center is the first facility in the world to offer proton therapy with HYPERSCAN™ technology, the latest and most precise form of proton therapy.

MedStar Georgetown's Mevion S250i™ with HYPERSCAN uses a unique technology, resulting in:

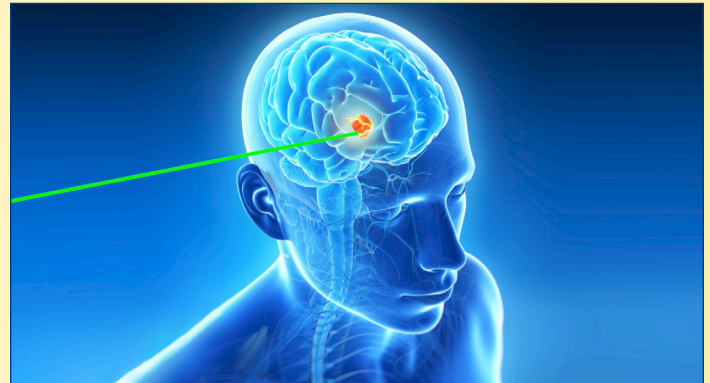
- **Greater precision:** HYPERSCAN's specialized adaptive aperture design produces a beam sharper than that of other systems, reducing damage to surrounding healthy tissues. Its layer-by-layer administration also allows for more precise sculpting, further protecting normal tissue.
- **Higher speed:** Faster than other proton pencil beam scanning (PBS) systems, HYPERSCAN can **reduce the margin of error in treating tumors**, improving both treatment accuracy and patient comfort as patients need to spend less time lying still.
- **Better performance:** With **pinpoint accuracy**, HYPERSCAN can deposit its cancer-fighting dose directly into the tumor and then stop, **leaving no exit dose**. That allows for better dose distribution and fewer side effects.

Applicable for tumors anywhere in the body, proton therapy is proving to be an especially valuable tool against breast tumors.

Conventional Radiation



Proton Therapy



Proton therapy with HYPERSCAN targets the tumor, leaving virtually no exit dose as compared to conventional radiation.

